

2/13/93 This is a #14  
**CONTROLLED DOCUMENT**

EG&G — ROCKY FLATS PLANT  
ENVIRONMENTAL MANAGEMENT DEPARTMENT

~~This is a REF. STAMP~~  
**ROCKY FLATS PLANT  
EMD OPERATING  
PROCEDURES MANUAL**

Manual No.: 5-21000-OPS-GT  
Procedure No.: Table of Contents, Rev 36  
Page: 1 of 3  
Effective Date: 02/11/93  
Organization: Environmental Management

**THIS IS ONE VOLUME OF A SIX VOLUME SET  
WHICH INCLUDES:**

**VOLUME I: FIELD OPERATIONS (FO)  
VOLUME II: GROUNDWATER (GW)  
VOLUME III: GEOTECHNICAL (GT)  
VOLUME IV: SURFACE WATER (SW)  
VOLUME V: ECOLOGY (EE)  
VOLUME VI: AIR (AP)**

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FOR VOLUME III: GEOTECHNICAL**

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DCN 92.01	Specialized Logging Form	2	11/13/92
DCN 93.01	Logging	2	01/15/93
DCN 93.02	Logging Deliverables Standard Practices	2	01/25/93
GT.02	Drilling and Sampling Using Hollow Stem Auger Techniques	2	05/12/92
DCN 92.01	Superseded by DCN 92.03	2	07/27/92
DCN 92.02	Superseded by DCN 92.03	2	07/27/92
DCN 92.03	Addition of the Drum Characterization	2	07/27/92
DCN 92.04	Prevention of Down Hole Contamination	2	08/26/92
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GT.03	Isolating Bedrock from Alluvium with Grouted Surface Casing	2	05/12/92
DCN 92.03	Expired	2	09/03/92
*DCN 93.01	Data Quality Objectives for PLF Investigations	2	02/10/93

ADMIN RECORD

DOCUMENT CLASSIFICATION REVIEW WAIVER  
PER R.B. HOFFMAN, CLASSIFICATION OFFICE  
JUNE 11, 1991

**ROCKY FLATS PLANT  
EMD OPERATING  
PROCEDURES MANUAL**

**Manual No.: 5-21000-OPS-GT**  
**Procedure No.: Table of Contents, Rev 36**  
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**Effective Date: 02/11/93**  
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<b><u>Procedure No.</u></b>	<b><u>Title</u></b>	<b><u>Rev. No.</u></b>	<b><u>Effective Date</u></b>
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GT.05	Plugging and Abandonment of Boreholes	2	05/12/92
DCN 92.01	Field Modification	2	12/09/92
DCN 93.01	5.2 Revision	2	02/04/93
GT.06	Monitoring Wells and Piezometer Installation	2	05/12/92
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*DCN 93.04	Wells - 5.3.2.2 Revised	2	02/10/93
*DCN 93.05	Temperatures - 5.3.2.3 Revised	2	02/10/93
GT.07	Logging and Sampling of Test Pits and Trenches	2	05/12/92
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GT.17	Land Surveying	2	05/12/92

**ROCKY FLATS PLANT  
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**Manual No.: 5-21000-OPS-GT  
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<b>Procedure No.</b>	<b>Title</b>	<b>Rev. No.</b>	<b>Effective Date</b>
GT.18	Surface Geophysical Surveys	2	05/12/92
DCN 92.01	Surface Magnetic Surveys Procedure	2	09/30/92
DCN 92.02	Modification to Stacking Requirements	2	10/15/92
DCN 92.03	Modification to Method of Taking Readings	2	10/15/92
DCN 93.01	5.4 Field Procedure Revisions	2	01/25/93
GT.19	Field Gas Chromatographs	2	05/12/92
GT.20	Procedures for Soil Interstitial Water Sampling and Sampler Installation	2	05/12/92
GT.21	Cone Penetrometer Testing	1	05/12/92
DCN 93.01	CPT Rods	1	01/15/93
GT.24	Approval Process for Construction Activities on or Near Individual Hazardous Substance Sites (IHSSs)	0	05/12/92

8-13, 2/12/93 This is a #14

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## EG&G — ROCKY FLATS PLANT ENVIRONMENTAL MANAGEMENT DOCUMENT CHANGE NOTICE (DCN)

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Procedure Number 5-21000-OPS-GT.3 Rev. 2

Page 1 of 1

Title Isolating Bedrock from Alluvium with Grouted Surface Casing	Date <i>MCB 2/4/93</i> <del>2/14/93</del> 2/10/93	DCN Number 5-21000-OPS-93.01 <i>eg2</i>
Expires <u>2/10/94</u>	Procedure Revision Required <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>MCB 2/9/93</i>	
Scope Limitation <u>Present Landfill OU7</u>		

Item Number	Page	Step or Paragraph	Changes (Use DCN CONTINUATION SHEET for Additional Space)
1	5 of 10	5.1.1	Add to the end of the paragraph: <i>present</i> "8 inch PVC casing may be used when isolating bedrock from landfill materials in boreholes that are for the purpose of sampling weathered bedrock only."
2	6 of 10	5.2	Add to the end of the second paragraph: <i>present</i> "When isolating bedrock from landfill materials, the casing will be embedded 6 inches to two feet into the bedrock."

Justification (Reason for Change – Provide Numbers To Reference Corresponding Items Above)

Data Quality Objectives for the PLF investigations are to obtain representative samples without causing contamination of the underlying materials. To accomplish these objectives, the following justifications are used:

1. The 8" PVC casing will be installed at shallow depths and will permit the use of augers to collect the weathered bedrock samples.
2. Emplacing the surface casing near the bedrock contact will prevent contamination of the weathered bedrock by landfill materials.

Concurrence	Organization	Req	Date	Concurrence	Organization	Req	Date
<i>[Signature]</i>	QAPM	X	2/10/93	<i>[Signature]</i>	User	X	2/5/93
<i>[Signature]</i>	EOM	X	2/8/93	<i>[Signature]</i>	EQS	X	2/9/93

Approval of Responsible Manager <i>[Signature]</i>	Date 5-Feb-93	Is Posting Req'd? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, By What Date? upon receipt	Date Posted
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5413, 2/12/93 This is a #14

# CONTROLLED DOCUMENT

## ENVIRONMENTAL MANAGEMENT DOCUMENT CHANGE NOTICE (DCN)

This is a RED Stamp

Procedure Number 5-21000-OPS-GT.6 Rev 2

Page 1 of 1

Title Monitoring Wells and Piezometer Installation	Date <u>2/10/93</u> <del>1-13-93</del> <u>OP 2/3/93</u>	DCN Number 5-21000-OPS- <u>93.04</u> <i>est</i>
Expires <u>2/10/94</u>	Procedure Revision Required <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Scope Limitation <u>none</u>		

Item Number	Page	Step or Paragraph	Changes (Use DCN CONTINUATION SHEET for Additional Space)
1	13 of 18	5.3.2.2	<p>Add a final paragraph to this section as follows:</p> <p>Where wells cannot be completed in an open hole because of stability or other problems and/or the well cannot be completed within augers, the well may be installed through casing. This casing will be of a diameter sufficient to provide a 2" annulus around the well casing and will consist of PVC or stainless steel. The casing will be advanced to the selected depth either using no additional fluids or by circulating RFP potable water down through the casing. After reaching the selected depth, a sand bailer will be used to remove any accumulated fluids until the borehole is bailed clear or until fluids are relatively clear and free of sediment. The well assembly will then be advanced through the casing to the designated depth and the annulus between the casing and the well assembly will be used to tremie well materials. The well will be installed as per the alluvial wells installed through augers except that the casing will be used instead of augers.</p>

Justification (Reason for Change – Provide Numbers To Reference Corresponding Items Above)

Open hole completion of bedrock wells is not always possible in wells that were rotary drilled.

**DOCUMENT CLASSIFICATION REVIEW WAIVER  
PER R.B. HOFFMAN, CLASSIFICATION OFFICE  
JUNE 11, 1991**

Concurrence	Organization	Req	Date	Concurrence	Organization	Req	Date
<i>[Signature]</i>	QAPM	X	2/3/93	<i>[Signature]</i>	User	X	1/13/93
<i>[Signature]</i>	EQS		1-19-93	<i>[Signature]</i>	USER		13-Jan-93
<i>[Signature]</i>	EDM	X	1-24-93	<i>[Signature]</i>	EQS		2/3/93
Approval of Responsible Manager <i>[Signature]</i>				Date <u>1-14-93</u>	Is Posting Req'd? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, By What Date? <u>upon receipt</u>	Date Posted

473-2/12/93 This is a #14

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EG&G -- ROCKY FLATS PLANT  
ENVIRONMENTAL MANAGEMENT DEPARTMENT

## ENVIRONMENTAL MANAGEMENT

### DOCUMENT CHANGE NOTICE (DCN)

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Procedure Number 5-21000-OPS-GT.6 Rev 2

Page 1 of 1

Title Monitoring Wells and Piezometer Installation	Date 2/10/93 <del>1-14-93</del> <del>01/23/93</del>	DCN Number 5-21000-OPS-93.05
Expires 2/10/94	Procedure Revision Required <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Scope Limitation none		

Item Number	Page	Step or Paragraph	Changes (Use DCN CONTINUATION SHEET for Additional Space)
1	13 of 18	5.3.2.3	Insert at the third line after "between 24 and 72 hours after initial grout placement": "except when temperatures are below freezing."
2	16 of 18	5.3.2.3	Add a final paragraph to this section as follows: "When daytime temperatures are consistently below freezing, it is not feasible to excavate the upper most 1 1/2 to 3 feet of grout in order to install the surface well features since the grout is often frozen and difficult to remove. In addition, poured concrete may freeze before it cures causing cracking and necessitating replacement to ensure a surface seal. In these instances, the PVC well riser will be securely capped until warmer weather allows the setting of surface features. Wells installed during freezing weather will not be permitted to stand without surface features for more than two months."

Justification (Reason for Change - Provide Numbers To Reference Corresponding Items Above)

#1 & #2  
Installation of surface features during freezing weather is not feasible

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JUNE 11, 1991

Concurrence	Organization	Req	Date	Concurrence	Organization	Req	Date
<i>[Signature]</i>	QAPM	X	2/3/93	<i>[Signature]</i>	User	X	1/14/93
<i>[Signature]</i>	EQS		1-19-93	<i>[Signature]</i>	User		1-15-93
<i>[Signature]</i>	EDM	X	1-29-93	<i>[Signature]</i>	EQS		2/3/93
Approval of Responsible Manager				Date			
<i>[Signature]</i>				1-14-93			
Is Posting Req'd?				If Yes, By What Date?			
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				upon receipt			
Date Posted							